SALES BULLETIN

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To: Atmel Worldwide Sales, Atmel Representatives and Distributors

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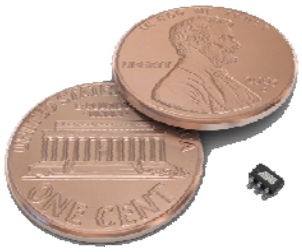
Atmel® Takes Industry's Leading Position in 6-pin Microcontrollers

More Than Six Times the Performance of any Similar Sized Microcontroller in the Market

Atmel introduces ATtiny10, a new 6-pin tinyAVR® microcontroller. This is the smallest device in the growing tinyAVR family. ATtiny10 is packaged in a 6-pin SOT-23 package, measuring only 2.9mm x 1.6mm. The device fits in a wide range of applications where size and cost are of high importance.

ATtiny10 is pin compatible to Microchip's PIC10F product family. Customers may prefer ATtiny10 for its 16-bit Timer/Counter, PWM outputs, combination of ADC and Analog Comparator, more SRAM or the higher performance AVR® CPU.



Target Applications

ATtiny10 can perform both as a distributed controller in large systems delivering intelligence where needed, or as a sole main controller in small embedded systems. Typical applications include:

- Electronic toys and games
- Circuit breakers, soft start relays and zero-crossing control
- Intelligent sensors, ADCs and sensor interfaces
- Glue logic
- Personal care, shavers, and toothbrushes
- Accessories for cellular or cordless telephones
- Air fresheners
- Medical testers, dispensers and inhalers
- Remote controls and controllers
- Home automation and household appliances
- Lighting control and dimmers
- Alarms, safety and security

Key Features

The main features of ATtiny10 are:

- 1 KB Flash program memory
- 32 bytes internal SRAM
- 8-bit ADC with 4 single-ended channels
- Rail-to-rail analog comparator
- 16-bit timer/counter with prescaler and PWM output
- Programmable wake-up and watchdog timers
- Low power consumption
- 200 µA in active mode at 1MHz and 1.8V
- 25 µA in idle mode at 1MHz and 1.8V
- 100 nA in power-down mode at 1.8V
- Up to 12 MIPS throughput at 12 MHz

Competition

The most visible competition is the PIC10F family from Microchip. Another family of competitors is the RS08KA from Freescale.

ATtiny10 versus Microchip

The PIC10F family includes six derivatives, with two memory size variants and three levels of analog content; no analog, an analog comparator only, or an A/D converter only. See table below.

	ATtiny10	PIC10					
		F200	F202	F204	F206	F220	F222
Flash	1 KB	384B	768B	384B	768B	384B	768B
SRAM	32B	16B	24B	16B	24B	16B	24B
AC	Yes	No		Yes		No	
ADC	4 x 8-bit	No				2 x 8-bit	
T/C	1 x 16-bit	1 x 8-bit					
PWM	2-ch	No					
Clock	12 MHz	4 MHz				8 MHz	
CPU	12 MIPS	1 MIPS				2 MIPS	
V_{CC}	1.8 – 5.5V	2.0 – 5.5V					
I/O	4	3 I/O + 1 input only					
Instr.	54	33					

ATtiny10 outperforms the combined features of the entire PIC10F family.

ATtiny10 Advantages

- More Flash
- More SRAM
- Higher performance
- Higher MIPS/MHz (PIC devices use four clock cycles per instruction)
- More instructions
- Lower supply voltage
- Longer timer/counter
- PWM outputs
- More I/O pins
- BOD built-in
- AC and ADC in same device

PIC10F Facts

- Either no analog functions, an Analog Comparator, or an Analog to Digital Converter
- 8-bit timer
- 3 GPIO and 1 input only pin (in 6-pin package)
- Max 2 MHz
- Max 768B Flash

ATtiny10 versus Freescale

The RS08KA family includes two derivates, with the only difference being the size of Flash memory. Neither derivative has ADC, as shown in the table below.

	ATtiny10	RS08KA1	RS08KA2
Flash	1 KB	1 KB	2 KB
SRAM	32B	63B	
AC	Yes	Yes	
ADC	4 x 8-bit	No	
T/C	1 x 16-bit	1 x 8-bit	
PWM	2-ch	No	
Clock	12 MHz	10 MHz	
CPU	12 MIPS	5 MIPS	
V_{CC}	1.8 – 5.5 V	1.8 – 5.5V	
I/O	4	2 I/O + 1 Input + 1 Output	
I_{CC} (1MHz, 1.8V)	200 µA	600 µA	
I_{CC} (Stop, 1.8V)	0.1 µA	1 µA	
Package	SOT-23	DFN (3 x 3 mm)	

ATtiny10 outperforms the combined features of the RS08KA family.

ATtiny10 Advantages

- Higher performance
- Higher MIPS/MHz (RS08 devices use two clock cycles per instruction)
- Longer timer/counter
- PWM output
- More I/O pins
- ADC
- Lower current consumption
- Smaller package

RS08KA Facts

- 1-2K Flash
- 63B SRAM

Product Availability, Price and Ordering Information

Samples of ATtiny10 are available now and production volume in May 2009.

Order Code	Pins	Voltage	Freq.	Package	Available	10k unit resale price (USD)
ATTINY10-TSHR	6	1.8 – 5.5V	12MHz	SOT-23	Now	0.35

The device is shipped in tape & reel.

Tools support

The ATtiny10 is supported by the following tools:

- ATSTK600 Starter Kit. Resale price: $159
- ATSTK600-ATTINY10 Socket Package. Resale price: $49

Documentation

Datasheets and application notes are available at http://www.atmel.com/tinyavr.

Support

For application support, please contact technical hotline at avr@atmel.com.